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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/875,134

06/07/2001

Hiroyuki Shinozaki

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ARMSTRONG, WESTERMAN & HATTORI, LLP  
1725 K STREET, NW.  
SUITE 1000  
WASHINGTON, DC 20006

EXAMINER

CUEVAS, PEDRO J

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 08/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/875,134

Applicant(s)

SHINOZAKI, HIROYUKI

Examiner

Pedro J. Cuevas

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s): \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required.
2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Semiconductor Substrate Holder Rotating Apparatus Having Magnetic Bearings.

### *Claim Objections*

4. The claims are objected to because the lines are crowded too closely together, making reading and entry of amendments difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

### *Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,818,137 to Nichols et al.

Nichols et al. clearly teaches the construction of an apparatus for rotating a semiconductor substrate comprising:

- a substrate holder (14) for carrying the substrate thereon;

- a ring-shaped rotor (18) for directly or indirectly supporting the substrate holder by way of supporting members (12f);

- a magnetic floating mechanism () for magnetically floating and supporting the rotor in a non-contact state;

- magnetic rotating mechanism (40) for magnetically rotating the rotor, wherein:

- the magnetic floating mechanism and magnetic rotating mechanism are formed as a single unit structure,

- the unit structure includes:

- a first set of windings for generating a magnetic field to provide the rotor with a rotating force, and

- a second set of windings for generating a magnetic field to float and support the rotor at a predetermined position,

- the first and second sets of windings are disposed on a single yoke plate (36) made of a magnetic material;

- a barrier wall (22) disposed between the outer surface of the rotor and the inner surface of the yoke plate in contact with only the yoke plate, resulting in that the first and second sets of windings are positioned on the yoke plate outside the barrier wall;

beads (18c, as defined by The American Heritage® Dictionary of the English Language, Third Edition copyright © 1992 by Houghton Mifflin Company), which are embedded in portions of the barrier wall, the portions lying in magnetic paths along which magnetic fluxes generated by the first and second sets of windings pass;

magnets (38a) disposed on the top surface of the yoke plate near the rotor or on the top surface of the rotor near the yoke plate, for generating magnetic fluxes in a direction orthogonal to the top surface of the rotor to thereby improve the rigidity of passive stability axes; and

a second set of windings comprise  $\alpha$  and  $\beta$  axis winding components, whose axes are set to coincidence with the X and Y of the horizontal plane motion coordinate.

7. With regards to the magnetic floating mechanism and magnetic rotating mechanism being formed as a single integral unit structure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the magnetic mechanism as a single integral unit structure, since it has been held that forming in one piece an article, which has formerly been formed in two pieces and put together, involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893). The term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

8. With regards to the beads being made of a magnetic material, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a magnetic material for the construction of the beads, since it has been held to be within the general skill of a

worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6 and is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,818,137 to Nichols et al. in view of U.S. Patent No. 5,432,644 to Tajima et al.

Nichols et al. disclose the construction of an apparatus for rotating a semiconductor substrate as described above.

However, it fails to disclose:

a first set of windings comprise +U, -U, +V, -V, +W and -W phase winding components, and

each component of the first set of windings is positioned correspondingly to each component of the second set of windings,

the pairs of the components of the first and second sets of windings are located on the yoke plate at the vicinity of the inner surface thereof and at equal intervals in the circumferential direction thereof.

Tajima et al. teach the use of:

a first set of windings comprise +U, -U, +V, -V, +W and -W phase winding components, and

each component of the first set of windings is positioned correspondingly to each component of the second set of windings,

the pairs of the components of the first and second sets of windings are located on the yoke plate at the vicinity of the inner surface thereof and at equal intervals in the circumferential direction thereof;

for the purpose of providing generating magnetic fields for rotating the rotor using multi-phase electric energy.

It would have been obvious to one skilled in the art at the time the invention was made to use the phase winding arrangement disclosed by Tajima et al. on the an apparatus for rotating a semiconductor substrate disclosed by Nichols et al. for the purpose of providing generating magnetic fields for rotating the rotor using multi-phase electric energy.

#### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (703) 308-4904. The examiner can normally be reached on M-F from 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R. Ramírez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-1341 for regular communications and (703) 305-3432 for After Final communications.


Application/Control Number: 09/875,134

Page 7

Art Unit: 2834

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Pedro J. Cuevas  
August 8, 2002

  
NESTOR RAMIREZ  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800